

TITLE

APPARATUS, METHOD AND PROGRAM FOR FORMULATING
AND SOLVING PROBLEMS OVER A NETWORK

5

BACKGROUND OF THE INVENTION

10 **1. Field of the Invention**

The present invention relates to a method for interactive problem solving via a data network, to a software program for performing such a method and to a web server that has such a software program. Furthermore, the present invention relates to a problem-solving database that is built up by means of such a method as mentioned.

15 **2. Related Art**

The central idea of the Internet, namely to interconnect participants who are disposed decentrally, is suitable for the field of brainstorming/problem solving. Accordingly, it is also already known from the prior art to provide a platform by means of which the problem formulator can input questions or problems and the idea provider can input contributions or suggested solutions. In this context, therefore, platform is understood as meaning a communication and visualization program that is implemented on a central computer of a data network, for example the Internet, and on

20

which any participants or selected participants of the communication can communicate via the data network.

More strictly speaking, it is known from the prior art that a
5 problem formulator inputs a question into the platform. This means that he registers with the platform and then inputs his problem in text form in a so-called forum. He then has to hope that competent idea providers or, in particular, motivated idea providers are found who input applicable
10 suggested solutions or answers. In the ideal case, consequently, recourse may be made for the purpose of solving problems to the worldwide knowledge organized decentrally by the potential participants.

15 In the meantime it has emerged that, in particular, competent idea providers do not give their contributions to the questions posed by the problem formulator without further ado. It is therefore known from the prior art that the problem formulator offers for motivation reasons a fixed prize as an incentive. The problem formulator therefore promises the idea provider who finds a complete solution a fixed amount of money.

This results in the problem that the amount of money may never be paid out since, according to the assessment of the problem formulator, none of the idea providers has given a complete or adequately competent answer. In addition, such an offering of a standard prize is suitable only for problem formulations that can actually be solved in one go. The problem formulator is otherwise faced with the dilemma of either awarding the complete amount for an unsatisfactory answer or, alternatively, not awarding the prize at all for a case and consequently demotivating all the potential participants.

The motivation problem for iterative solution processes in which, therefore, a complete or competent solution is worked out in several steps or, possibly, with a multiplicity of branchings, therefore continues to exist in the prior art. At the same time, it has to be remembered that said iterative solution process comes appreciably closer to the reality of brainstorming-like events.

20

SUMMARY OF THE INVENTION

It is therefore the object of the present invention to provide a technique that makes possible problem solving via a

data network, it being intended to design said technique to support the natural iterative solution process in a plurality of steps by commensurate motivation of idea providers.

5 This object is achieved, according to the invention, by the features of the independent claims. The dependent claims develop the central idea of the invention in a particularly advantageous manner.

10 According to the invention, a method of interactive problem solving via a data network, in particular the Internet, is provided. In this method, a first participant (problem formulator) inputs a problem formulation into the data network. Other participants, whose number is specified or, alternatively, also unlimited, input suggested solutions. To support the natural iterative solution process by commensurate motivation, control tools are available to the first participant, the problem formulator. The term "tool" in this context denotes, for example, complete program units
15 that are stored on the central problem solution platform and that each perform a predetermined function. The first participant, the problem formulator, may use said control tools to perform a targeted individual awarding of motivation

5

points or a targeted individual awarding of a prize to the other participants. The awarding of motivation points or the awarding of a prize may in this connection be varied in the course of the development of the suggested solutions by the problem formulator, the first participant, in relation to the other participants for the purpose of guiding the development of the problem solution.

10 The present invention consequently departs from the principle of the fixed awarding of the total prize sum and, on the contrary, permits a systematic section-by-section awarding in order to keep the motivation potential high during the entire, possibly iterative, problem-solving process.

15 The first participant can specify at the outset a fixed prize that is divided up in the course of the problem solving in respect of time of allocation and addressee, but must at all events be paid out.

20 In addition, the other participants, that is to say the idea providers, may mutually award themselves a part of the award.

As stated, both the input of the problem formulation and of
the suggested solutions, including the provision of the
control tools can take place via a central data network
platform that is stored in a server of the data network
5 (Internet).

The suggested solutions can be inputted in real time and
displayed on the data network platform. The input of the
problem formulation and the suggested solutions may, at the
10 same time, be done anonymously.

The control tools may, at the same time, have a function in
awarding an instalment of the prize to another participant.
Furthermore, the control tools may have a function in
controlling the problem solving according to a selected
15 suggested solution, in which case, therefore, the subsequent
problem solving can develop further only within the context
of said selected suggested solution.

20 In accordance with a further control tool, a function is
provided for blocking the further development of a suggested
solution so that the further development of the problem

solving can no longer take place, at least temporarily, in
the context of the blocked suggested solution.

In accordance with a further aspect of the invention, a
5 software program is provided that, when loaded into a memory
of a computer of a data network or implemented, makes it
possible for connected participants of the data network to
perform a method as explained above.

10 Furthermore, a web server is provided with such a software
program.

In accordance with a further aspect of the invention, a
system for interactive problem solving via a data network is
provided in which a first participant inputs a question
formulation or a problem formulation into the data network.
Other participants input answers or suggested solutions,
control tools that make possible a targeted individual
awarding of motivation points or awarding of a prize to the
20 other participants being available to a presenter. At the
same time, the awarding of motivation points or the awarding
of a prize may be varied in the course of the development of
the suggested solutions or answers by the presenter or the

other participants to control the development of the problem solving.

5 The presenter may be chosen by the first participant and/or by the other participants. Optionally, only the presenter can specify at the outset a fixed prize that is divided up flexibly in the course of the problem solving.

10 The number of other participants may be limited, which is, for example, the case if the data network is an internal company Intranet. The input of the problem solving and the suggested solutions and also the provision of the control tools may take place via a central data network platform.

15 In accordance with a further aspect, a software program is provided for performing such a method. In accordance with yet a further aspect, the use of such a method is provided in a continuous improvement process of a company.

20 In accordance with yet a further aspect of the present invention, a method is provided for interactive problem solving via a data network, the problem formulation being performed by a client and the problem solving by a competent

authority. In this connection, a competent authority is selected publicly via the data network in a first step from a multiplicity of anonymous competent authorities on the basis of preliminary suggested solutions that the competent authorities issue via the data network. The concluding solution of the formulated problem then takes place in private collaboration between an identified, selected competent authority and the client.

The competent authorities can be selected in this connection via the central data network platform. The competent authorities may be chosen in advance.

In accordance with yet a further aspect of the present invention, a method of interactive problem solving via a data network is provided in which a first participant inputs a question formulation or problem formulation into the data network, for example to a central problem-solving platform. Other participants provide answers or suggested solutions, the problem being described on-line by means of a graphical display on a data network platform on a central computer of the data network. The graphical display of the problem description can ideally be viewed on-line by all the other

participants. As a simpler solution, provision may be made that the participant works with the last updated version of the graphical display, which is transmitted to the central platform only by operating a certain switching button.

5

In this connection, the graphical display may take place on the central computer without active or passive downloading.

10
15
20

In accordance with yet a further aspect of the present invention, a problem solution database is provided that contains ideas, problem formulations and suggested solutions that were inputted into a central data network platform in accordance with one of the abovementioned methods or, if ideas not enforced by problem formulations are involved, directly via an input mask of the problem solution database. In this connection, the suggested solutions can be assessed in the database with regard to their quality.

Said quality assessment can take place, for example, on the basis of the specified motivation points or prize awards for the respective suggested solutions.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be more readily understood from a detailed description of the preferred embodiments taken in conjunction with the following figures:

5

Figure 1 shows a diagrammatic view of a data network system for performing the present invention;

10

Figure 2 shows a diagrammatic view of a technique for interactive problem solving according to the present invention;

15

Figure 3 shows a further tool of the technology in accordance with Figure 2;

20

Figure 4 shows a diagrammatic view of the operational sequence in accordance with a further aspect of the present invention;

Figure 5 shows a detailed view of the operational sequence of Figure 4;

Figure 6 shows further steps that may follow the final step

of Figure 5;

Figure 7 shows a diagrammatic view of an operational sequence detail of Figure 6;

5

Figure 8 shows the model A of Figure 7 in detail;

Figure 9 shows the model B of Figure 7 in detail;

10 Figure 10 shows a further exemplary embodiment of the present invention in which an interactive problem solving takes place in a company Intranet;

15 Figure 11 shows the operation of a system presenter in the system of Figure 10;

Figure 12 shows further operational sequences that may take place in connection with the system of Figure 11;

20 Figure 13 shows the application of the present invention to a TV format, namely an interactive quiz show;

Figure 14 shows a detailed view of the TV format in accordance with Figure 13;

5 present invention to a TV format; and

Figure 16 shows yet a further example of the application of the present invention to a TV format.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to Figure 1, a system for implementing the present invention will now first be explained diagrammatically. Via a data network, such as, for example, the Internet 28, various connected terminals 1, 3 can communicate with a server 29 of the data network. In this connection, a central problem-solving platform 2 in the form of suitable software is installed or implemented on the server 29. The server 29, on which the central problem-solving platform 2 is implemented or installed, can communicate with a problem solution database 27, which may also be part of the server 29 itself. In the exemplary embodiment of Figure 1, however, the problem-solving database 27 is shown as a separate database that is connected to a data line or to the Internet

28 having the server 29. It may be noted that the problem-solving database will be explained in detail later.

In principle, the various terminals 1, 3 are interchangeable in accordance with the idea of the Internet 28, but let it be assumed below that the user of terminal 1 is a so-called problem formulator and users of the terminals 3 are so-called idea providers whose function and actions are explained in greater detail below.

10 Figure 2 shows a detailed function-oriented representation of the system of Figure 1. The central problem-solving platform 2 on the server 29 makes it possible for the problem
15 formulator 1, i.e., more strictly speaking, the user of terminal 1, to input in text and/or graphical form the description of a problem 5 that is discussed in the course of a BBS (bulletin board system), which is known per se from discussion forums on the Internet. In this context, a BBS is a type of written conversation that can take place in real time, but that makes possible, in addition, a time-shifted 20 (subsequent) contribution into individual, structured conversation threads. It is possible for the participant to latch onto a certain solution path or conversation thread or, alternatively, to open up entirely new conversation threads.

Alternatively or additionally, the problem can be discussed
with other participants in the course of a so-called
scheduled chat. In this context, a "chat" is a software that
makes possible for participants in this service a type of
written conversation by means of a (strictly) chronological
running text display. Such a chat can be opened up, for
example, by the problem formulator. For this purpose, he
inputs a deadline into a field provided for the purpose and
the other participants then know that they can have a
simultaneous discussion at that point in time with the
problem formulator in person.

The term "problem chat" is to be understood below as a BBS-type system, possibly supplemented by a scheduled chat.

The problem 5 inputted by the problem formulator 1 can be displayed as text and/or graphically on a surface of the central problem-solving platform 2 so that all the other potential participants in a communication with the central problem-solving platform 2 can read off this problem formulation 5 on their terminal.

Every other user of a connected terminal can assume, possibly
after registration, the function of an idea provider 3, which
means that he inputs suggested solutions 4 into the central
problem-solving platform 2. Said suggested solutions 4 are
5 displayed in text and/or graphical form likewise visibly for
all the users on the surface of the central problem-solving
platform 2.

As is furthermore evident from Figure 2, the problem
10 formulator 1 offers a fixed prize 7 before the start of the
problem solving, the level of which is also displayed on the
surface of the central problem-solving platform 2. In
accordance with the invention, in the course of the problem
solving, whether the latter is successful in the estimation,
for example, of the problem formulator, or is completely
unsuccessful or only partially successful, the prize 7 will
in any event be handed over to active idea providers of the
interactive problem solving.

20 In relation to the time of allocation and the addressees, the
prize distribution is, on the other hand, flexible. The
level of the prize or amount of money of a section of the

awarding is, however, fixed. This facilitates the operational sequence for all the participants.

The essential point is that control tools 6 are available to
5 the problem formulator 1 for the individual motivated control
of the problem solving sequence in accordance with the
particular suggestions 4 of the idea providers 3. Said
control tools 6 make possible, in particular, a section-by-
section individual awarding of the prize 7 offered. The
tools "message" 11, "brain-point" 12, "motivation point" 13,
10 "analysis" 14, "yellow card" 15, "budget" 16, "ceremony" 17
and "dead end" 26 are shown as examples of the control tools
6.

15 The control tools are located on the BBS page. They can also
be used in the course of a scheduled chat and appear visually
as part of the chat page. Actually, however, the tool field
of the BBS page is opened as an additional frame.

20 A further type of control tool is the "room-award" function
19 that is shown in Figure 3 and is used not by the problem
formulator 1, but, on the contrary, by the idea providers 3.

The system shown in the diagrammatic figures 1 to 3 are
therefore an exclusively digitally managed switching platform
on which every data network user can help to solve problems
anonymously and earn money prizes or, alternatively, can
5 input his own questions onto the central problem-solving
platform and have them solved.

In this connection, the core element is a type of specialism-overarching solution brainstorming in a problem chat 18
10 installed only for the particular problem formulation and the motivation of the potential idea providers 3 by prize points or motivation points.

15 The participating groups therefore allow themselves to be divided, on the one hand, into the problem formulators 1 as clients and the problem solvers as idea providers 3.

A client can input a problem formulation into the central problem-solving platform 2 on-line or by e-mail. As stated,
20 in doing so he specifies at the outset a prize 7 for every suggested solution. In a form, for example, credit card data are inputted for this purpose in order to authorize the level of the amount of the prize or the bank link for direct debit

collection. The prize is always due regardless of the quality of the suggested solution. A separate problem chat 18, i.e., a BBS and optionally a scheduled chat, is installed for every problem.

5

The solution participants (also idea providers) 3 interested in prizes can select a topic field on the start page of the central problem-solving platform 2 or, alternatively, input their field of interest by means of a search engine.

Accordingly, they then receive a selection of problem descriptions that have already been inputted, with context relating to the chosen topic and a reference (links) to each problem chat 18 installed (BBS page and, optionally, current scheduled chat). In said problem chat 18, comprising the said pages, the idea providers 3 can then participate actively in the current discussion and input suggested solutions 4 in real time.

10
15
20

The distribution of the offered prize 7 to participating idea providers 3 who have acquired points worth money is guaranteed. A transfer of the offered prize always occurs. The problem formulator 1 can observe the problem chat 18 proceeding in each case relating to the problem 5 he has

posed and participate actively in the problem solving
proceeding in the course of the problem chat 18, in which
connection this can take place anonymously via a password or
even openly as client. The control tools 6 are made
available as tools to the problem formulator 1 for
controlling the operational sequence of the problem solving
in the problem chat 18. The function of the individual tools
6 will be explained below:

10 "Message" tool 11:

The "message" tool 11 permits the formulation of so-called
motto lines. The problem formulator 1 can therefore input a
motto that can be continuously changed and also makes
possible the input of instructions for idea providers 3. To
this extent, this is not a control tool in the real sense,
but an on-line text input field available to the problem
formulator. If the problem formulator 1 does not utilize the
functionality of this "rules" tool 11, the two motto lines
are occupied in a formulated manner, such as, for example, by

20 "no idea is a bad idea" or

"no negative criticism permitted".

"Brain-point" tool 12:

The "brain-point" tool 12 permits the awarding of a predetermined share, such as, for example, 5% of the amount of the prize 7 previously offered, for each "brain point" awarded in order obviously to motivate competent idea providers 3. As a result of the fact that, according to the invention, certain shares of the prize 7 are allocated to idea providers 3 in accordance with the allocated brain points in the course of the development of the problem solution in problem chat 18 prior to the concluding solution, the idea providers are always more strongly motivated to develop ideas jointly. In contrast to the prior art, therefore, the entire prize 7 is not allocated to one idea provider 3, but, on the contrary, shares of the prize 7 offered at the outset for the purpose of iterative motivation are allocated section-by-section to guide the problem solving in the problem chat 18.

"Motivation point" tool 13:

Without directly claiming the prize 7, the participants can also be motivated by means of the allocation of a "motivation point". The awarding of a "motivation point" does not yet automatically result in the awarding of a certain amount of

the money prize 7 to an idea provider 3, but on the contrary,
an idea provider 3 first has to accumulate successively a
predetermined number, for example 3, of "motivation points"
13 which are then converted automatically into a "brain
point" with the corresponding instalment of the prize 7. If
5 a "brain point" 12 is assigned to an idea provider 3 before
the latter has reached the predetermined number of
"motivation points" 13, all the motivation points are erased
on the participant account of the relevant idea provider 3.

10 The "motivation point" tool 13 consequently makes possible a
flexible control of the problem solving in the problem chat
18 without a confusing variation in value of the brain points
having to be permitted.

15 "Analysis" tool 14:

Activation and subsequent clicking on a predetermined
suggested solution 4 supplied by an idea provider 3 in the
current continuous text of the problem chat 18 denotes the
beginnings of a solution and consequently requires all the
idea providers 3 to concentrate the subsequent problem
20 solving, at least temporarily, i.e., until this function is
canceled, on the further development of the selected
suggestion. In this case, a corresponding instruction is

issued in the message line of the "message" function 11 and a commensurate motivation point is allocated to the idea provider 3 of the selected suggestion 4.

5 "Dead end" tool 26:

If a suggested solution 4 is marked in the continuous text of the problem chat 18 by the function "dead end" 26, this means that the problem formulator 1 would like to prevent any further development of the problem solving in the context of this problem proposal 4 blocked in this manner.

Consequently, an unnecessary waste of resources is prevented.

10 idea provider 3 in the problem chat 18
15 idea provider 3 in the problem chat 18

"Yellow card" tool 15:

Idea providers 3 who have, for example, attracted attention by destructive contributions can be warned by the allocation of a "yellow card" 15, a repeated allocation of a "yellow card" to an idea provider 3 resulting in the banning of the idea provider 3 concerned for the present problem chat 18 in the sense of a red card. Consequently, disruptive idea providers 3 can be excluded from the problem chat 18.

20

"Budget" tool 16:

This tool serves to indicate the balance of the prize 7

offered, i.e., that sum still outstanding for awarding after
awarding of instalments in accordance with the allocated
"brain points" 12. Optionally, the prize budget can be
topped up again by the problem formulator 1, for example, by
5 a renewed credit card authorization for allocating further
"brain points" 12 if the problem formulator 1 is of the
opinion that the solution potential has not yet been
exhausted after the prize budget 7 offered at the outset has
been used up for the first time. The compulsory awarding of
the budget sum is specifically programmed in.

10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
105
110
115
120
125
130
135
140
145
150
155
160
165
170
175
180
185
190
195
200
205
210
215
220
225
230
235
240
245
250
255
260
265
270
275
280
285
290
295
300
305
310
315
320
325
330
335
340
345
350
355
360
365
370
375
380
385
390
395
400
405
410
415
420
425
430
435
440
445
450
455
460
465
470
475
480
485
490
495
500
505
510
515
520
525
530
535
540
545
550
555
560
565
570
575
580
585
590
595
600
605
610
615
620
625
630
635
640
645
650
655
660
665
670
675
680
685
690
695
700
705
710
715
720
725
730
735
740
745
750
755
760
765
770
775
780
785
790
795
800
805
810
815
820
825
830
835
840
845
850
855
860
865
870
875
880
885
890
895
900
905
910
915
920
925
930
935
940
945
950
955
960
965
970
975
980
985
990
995
1000
1005
1010
1015
1020
1025
1030
1035
1040
1045
1050
1055
1060
1065
1070
1075
1080
1085
1090
1095
1100
1105
1110
1115
1120
1125
1130
1135
1140
1145
1150
1155
1160
1165
1170
1175
1180
1185
1190
1195
1200
1205
1210
1215
1220
1225
1230
1235
1240
1245
1250
1255
1260
1265
1270
1275
1280
1285
1290
1295
1300
1305
1310
1315
1320
1325
1330
1335
1340
1345
1350
1355
1360
1365
1370
1375
1380
1385
1390
1395
1400
1405
1410
1415
1420
1425
1430
1435
1440
1445
1450
1455
1460
1465
1470
1475
1480
1485
1490
1495
1500
1505
1510
1515
1520
1525
1530
1535
1540
1545
1550
1555
1560
1565
1570
1575
1580
1585
1590
1595
1600
1605
1610
1615
1620
1625
1630
1635
1640
1645
1650
1655
1660
1665
1670
1675
1680
1685
1690
1695
1700
1705
1710
1715
1720
1725
1730
1735
1740
1745
1750
1755
1760
1765
1770
1775
1780
1785
1790
1795
1800
1805
1810
1815
1820
1825
1830
1835
1840
1845
1850
1855
1860
1865
1870
1875
1880
1885
1890
1895
1900
1905
1910
1915
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
2085
2090
2095
2100
2105
2110
2115
2120
2125
2130
2135
2140
2145
2150
2155
2160
2165
2170
2175
2180
2185
2190
2195
2200
2205
2210
2215
2220
2225
2230
2235
2240
2245
2250
2255
2260
2265
2270
2275
2280
2285
2290
2295
2300
2305
2310
2315
2320
2325
2330
2335
2340
2345
2350
2355
2360
2365
2370
2375
2380
2385
2390
2395
2400
2405
2410
2415
2420
2425
2430
2435
2440
2445
2450
2455
2460
2465
2470
2475
2480
2485
2490
2495
2500
2505
2510
2515
2520
2525
2530
2535
2540
2545
2550
2555
2560
2565
2570
2575
2580
2585
2590
2595
2600
2605
2610
2615
2620
2625
2630
2635
2640
2645
2650
2655
2660
2665
2670
2675
2680
2685
2690
2695
2700
2705
2710
2715
2720
2725
2730
2735
2740
2745
2750
2755
2760
2765
2770
2775
2780
2785
2790
2795
2800
2805
2810
2815
2820
2825
2830
2835
2840
2845
2850
2855
2860
2865
2870
2875
2880
2885
2890
2895
2900
2905
2910
2915
2920
2925
2930
2935
2940
2945
2950
2955
2960
2965
2970
2975
2980
2985
2990
2995
3000
3005
3010
3015
3020
3025
3030
3035
3040
3045
3050
3055
3060
3065
3070
3075
3080
3085
3090
3095
3100
3105
3110
3115
3120
3125
3130
3135
3140
3145
3150
3155
3160
3165
3170
3175
3180
3185
3190
3195
3200
3205
3210
3215
3220
3225
3230
3235
3240
3245
3250
3255
3260
3265
3270
3275
3280
3285
3290
3295
3300
3305
3310
3315
3320
3325
3330
3335
3340
3345
3350
3355
3360
3365
3370
3375
3380
3385
3390
3395
3400
3405
3410
3415
3420
3425
3430
3435
3440
3445
3450
3455
3460
3465
3470
3475
3480
3485
3490
3495
3500
3505
3510
3515
3520
3525
3530
3535
3540
3545
3550
3555
3560
3565
3570
3575
3580
3585
3590
3595
3600
3605
3610
3615
3620
3625
3630
3635
3640
3645
3650
3655
3660
3665
3670
3675
3680
3685
3690
3695
3700
3705
3710
3715
3720
3725
3730
3735
3740
3745
3750
3755
3760
3765
3770
3775
3780
3785
3790
3795
3800
3805
3810
3815
3820
3825
3830
3835
3840
3845
3850
3855
3860
3865
3870
3875
3880
3885
3890
3895
3900
3905
3910
3915
3920
3925
3930
3935
3940
3945
3950
3955
3960
3965
3970
3975
3980
3985
3990
3995
4000
4005
4010
4015
4020
4025
4030
4035
4040
4045
4050
4055
4060
4065
4070
4075
4080
4085
4090
4095
4100
4105
4110
4115
4120
4125
4130
4135
4140
4145
4150
4155
4160
4165
4170
4175
4180
4185
4190
4195
4200
4205
4210
4215
4220
4225
4230
4235
4240
4245
4250
4255
4260
4265
4270
4275
4280
4285
4290
4295
4300
4305
4310
4315
4320
4325
4330
4335
4340
4345
4350
4355
4360
4365
4370
4375
4380
4385
4390
4395
4400
4405
4410
4415
4420
4425
4430
4435
4440
4445
4450
4455
4460
4465
4470
4475
4480
4485
4490
4495
4500
4505
4510
4515
4520
4525
4530
4535
4540
4545
4550
4555
4560
4565
4570
4575
4580
4585
4590
4595
4600
4605
4610
4615
4620
4625
4630
4635
4640
4645
4650
4655
4660
4665
4670
4675
4680
4685
4690
4695
4700
4705
4710
4715
4720
4725
4730
4735
4740
4745
4750
4755
4760
4765
4770
4775
4780
4785
4790
4795
4800
4805
4810
4815
4820
4825
4830
4835
4840
4845
4850
4855
4860
4865
4870
4875
4880
4885
4890
4895
4900
4905
4910
4915
4920
4925
4930
4935
4940
4945
4950
4955
4960
4965
4970
4975
4980
4985
4990
4995
5000
5005
5010
5015
5020
5025
5030
5035
5040
5045
5050
5055
5060
5065
5070
5075
5080
5085
5090
5095
5100
5105
5110
5115
5120
5125
5130
5135
5140
5145
5150
5155
5160
5165
5170
5175
5180
5185
5190
5195
5200
5205
5210
5215
5220
5225
5230
5235
5240
5245
5250
5255
5260
5265
5270
5275
5280
5285
5290
5295
5300
5305
5310
5315
5320
5325
5330
5335
5340
5345
5350
5355
5360
5365
5370
5375
5380
5385
5390
5395
5400
5405
5410
5415
5420
5425
5430
5435
5440
5445
5450
5455
5460
5465
5470
5475
5480
5485
5490
5495
5500
5505
5510
5515
5520
5525
5530
5535
5540
5545
5550
5555
5560
5565
5570
5575
5580
5585
5590
5595
5600
5605
5610
5615
5620
5625
5630
5635
5640
5645
5650
5655
5660
5665
5670
5675
5680
5685
5690
5695
5700
5705
5710
5715
5720
5725
5730
5735
5740
5745
5750
5755
5760
5765
5770
5775
5780
5785
5790
5795
5800
5805
5810
5815
5820
5825
5830
5835
5840
5845
5850
5855
5860
5865
5870
5875
5880
5885
5890
5895
5900
5905
5910
5915
5920
5925
5930
5935
5940
5945
5950
5955
5960
5965
5970
5975
5980
5985
5990
5995
6000
6005
6010
6015
6020
6025
6030
6035
6040
6045
6050
6055
6060
6065
6070
6075
6080
6085
6090
6095
6100
6105
6110
6115
6120
6125
6130
6135
6140
6145
6150
6155
6160
6165
6170
6175
6180
6185
6190
6195
6200
6205
6210
6215
6220
6225
6230
6235
6240
6245
6250
6255
6260
6265
6270
6275
6280
6285
6290
6295
6300
6305
6310
6315
6320
6325
6330
6335
6340
6345
6350
6355
6360
6365
6370
6375
6380
6385
6390
6395
6400
6405
6410
6415
6420
6425
6430
6435
6440
6445
6450
6455
6460
6465
6470
6475
6480
6485
6490
6495
6500
6505
6510
6515
6520
6525
6530
6535
6540
6545
6550
6555
6560
6565
6570
6575
6580
6585
6590
6595
6600
6605
6610
6615
6620
6625
6630
6635
6640
6645
6650
6655
6660
6665
6670
6675
6680
6685
6690
6695
6700
6705
6710
6715
6720
6725
6730
6735
6740
6745
6750
6755
6760
6765
6770
6775
6780
6785
6790
6795
6800
6805
6810
6815
6820
6825
6830
6835
6840
6845
6850
6855
6860
6865
6870
6875
6880
6885
6890
6895
6900
6905
6910
6915
6920
6925
6930
6935
6940
6945
6950
6955
6960
6965
6970
6975
6980
6985
6990
6995
7000
7005
7010
7015
7020
7025
7030
7035
7040
7045
7050
7055
7060
7065
7070
7075
7080
7085
7090
7095
7100
7105
7110
7115
7120
7125
7130
7135
7140
7145
7150
7155
7160
7165
7170
7175
7180
7185
7190
7195
7200
7205
7210
7215
7220
7225
7230
7235
7240
7245
7250
7255
7260
7265
7270
7275
7280
7285
7290
7295
7300
7305
7310
7315
7320
7325
7330
7335
7340
7345
7350
7355
7360
7365
7370
7375
7380
7385
7390
7395
7400
7405
7410
7415
7420
7425
7430
7435
7440
7445
7450
7455
7460
7465
7470
7475
7480
7485
7490
7495
7500
7505
7510
7515
7520
7525
7530
7535
7540
7545
7550
7555
7560
7565
7570
7575
7580
7585
7590
7595
7600
7605
7610
7615
7620
7625
7630
7635
7640
7645
7650
7655
7660
7665
7670
7675
7680
7685
7690
7695
7700
7705
7710
7715
7720
7725
7730
7735
7740
7745
7750
7755
7760
7765
7770
7775
7780
7785
7790
7795
7800
7805
7810
7815
7820
7825
7830
7835
7840
7845
7850
7855
7860
7865
7870
7875
7880
7885
7890
7895
7900
7905
7910
7915
7920
7925
7930
7935
7940
7945
7950
7955
7960
7965
7970
7975
7980
7985
7990
7995
8000
8005
8010
8015
8020
8025
8030
8035
8040
8045
8050
8055
8060
8065
8070
8075
8080
8085
8090
8095
8100
8105
8110
8115
8120
8125
8130
8135
8140
8145
8150
8155
8160
8165
8170
8175
8180
8185
8190
8195
8200
8205
8210
8215
8220
8225
8230
8235
8240
8245
8250
8255
8260
8265
8270
8275
8280
8285
8290
8295
8300
8305
8310
8315
8320
8325
8330
8335
8340
8345
8350
8355
8360
8365
8370
8375
8380
8385
8390
8395
8400
8405
8410
8415
8420
8425
8430
8435
8440
8445
8450
8455
8460
8465
8470
8475
8480
8485
8490
8495
8500
8505
8510
8515
8520
8525
8530
8535
8540
8545
8550
8555
8560
8565
8570
8575
8580
8585
8590
8595
8600
8605
8610
8615
8620
8625
8630
8635
8640
8645
8650
8655
8660
8665
8670
8675
8680
8685
8690
8695
8700
8705
8710
8715
8720
8725
8730
8735
8740
8745
8750
8755
8760
8765
8770
8775
8780
8785
8790
8795
8800
8805
8810
8815
8820
8825
8830
8835
8840
8845
8850
8855
8860
8865
8870
8875
8880
8885
8890
8895
8900
8905
8910
8915
8920
8925
8930
8935
8940
8945
8950
8955
8960
8965
8970
8975
8980
8985
8990
8995
9000
9005
9010
9015
9020
9025
9030
9035
9040
9045
9050
9055
9060
9065
9070
9075
9080
9085
9090
9095
9100
9105
9110
9115
9120
9125
9130
9135
9140
9145
9150
9155
9160
9165
9170
9175
9180
9185
9190
9195
9200
9205
9210
9215
9220
9225
9230
9235
9240
9245
9250
9255
9260
9265
9270
9275
9280
9285
9290
9295
9300
9305
9310
9315
9320
9325
9330
9335
9340
9345
9350
9355
9360
9365
9370
9375
9380
9385
9390
9395
9400
9405
9410
9415
9420
9425
9430
9435
9440
9445
9450
9455
9460
9465
9470
9475
9480
9485
9490
9495
9500
9505<br

A certain share, for example 30%, of the total prize budget is set aside and retained for the purpose of exercising the "ceremony" function. Consequently, said share is not available for distribution via the "brain point" function.

5

The idea providers 3 can place their proposals 4 on the appropriate page of the problem chat 18 via a text input field and supplement it with drawings via a so-called whiteboard. The function of the whiteboard is, by the way, explained in detail below.

10

The idea providers 3 furthermore each find the "room award" control tool 19 (in Figure 3) in a tool bar assigned to them. A certain percentage of the prize sum 7, for example 10%, is compulsorily allocated to the "room" function 19. This type of prize awarding is allocated by the idea providers 3 by awarding commensurate room award points to the solution contribution of the respective other idea providers 3 that is the most creative in their view. In this connection, each idea provider 3 has only one room award available for awarding, but it can be assigned to other idea providers 3 as desired right up to the conclusion of the problem chat 18. This makes it possible, inter alia, for the problem

20

formulator 1 to gain an insight into the assessment of the different suggested solutions 4 in the view of the idea providers 3. If a problem formulator 1 has not made any decision about the awarding of the prize 7 right up to the conclusion of the problem chat 18, the outstanding total sum in accordance with the "budget" function 16, including the ceremony share 17, is automatically allocated to the idea provider 3 having the most room award points 19.

10 The programmed distribution key as to how the total prize budget is divided up over brain point/motivation/room award/ceremony cannot be influenced by the problem formulator. Said distribution key splits the total amount specified by the problem formulator into several parts based on a different awarding mechanism in each case as explained above.

15 The system shown in Figures 1 to 3 therefore provides a motivation-point and prize-controlled problem chat 18 that makes possible an interactive problem solving.

20 Referring to Figures 4 to 9, a further exemplary embodiment of the present invention will now be explained. Whereas the

exemplary embodiment of Figures 1 to 3 is intended for the
public sector, the exemplary embodiment of Figures 4 to 9
serves the professional sector, in which, for example,
companies 21 would like to solve certain problem areas. The
connection with the exemplary embodiment of Figures 1 to 3 is
that cer in solution providers 3 from the exemplary
embodiment of Figures 1 to 3 can qualify as so-called "top
brains" if they have attracted attention by their special
authority expressed, for example, in room award points.

This model in accordance with Figures 4 to 9 is attractive in
that the companies 21 have a privileged access to the
creativity of the "top brains" of the lower level. The
companies 21 are provided for this purpose with an exclusive
selection tool 30 for selecting reliable idea providers 3.
In addition to an authority search function, the companies 21
consequently have an insight into a ranking that may result
from the operational sequence in accordance with the
exemplary embodiment of Figures 1 to 3 and can put together
an anonymous profile of "top brains". However, the creative
behavior of such solution providers 3 can be traced right
back into the complete contributions of problem chats 18
already concluded. Selected idea providers 3 may

consequently then be invited as "top brains" for participating in the problem solving in the higher level. The profile relating to the selection of the "top brains" among the solution providers may, for example, contain the following details:

5

Ranking position

Brain points and motivation points according to number, total value and relationship to participation frequency;

10 Brain points broken down according to the topic of the problem formulation; and

Details about the share in solutions of problems posed by institutions and companies, etc.

15
10
5
15

The method shown in Figure 4 can consequently also be utilized to incorporate top brains permanently into a competent authority pool 20 of the upper level.

20

Referring to Figure 5, the operational sequence of problem solving in accordance with this exemplary embodiment is now explained. In a preliminary round, the client (company) 21 selects the participants according to an anonymous competence profile and negotiates with them an individual daily rate as

basic reimbursement, or he agrees to the daily rate specified
in the personal profile. The client 21 has the option of
replacing participants of the competent authorities 20 at any
time or varying their participant numbers. In this
5 procedure, the client 21 can optionally appear openly or
anonymously. In addition, the client 21 defines the problem
34. In this prize-free preliminary round 31, the problem is
precisely defined in a first brainstorming 35. At the same
time, the competent authorities 20 have the opportunity of
10 conveying to the client 21 their fields of suitability in
order to build up in this way in the continuing value of
their solution approaches that follow in the subsequent
negotiation levels 32 and 33.

15 The group brainstorming levels 32 then follow as the next
step. The client 21 can terminate the prize-free preliminary
round 31 and then open up the next group brainstorming level
32. In this connection, the control tools 6 in accordance
with the exemplary embodiment of Figures 1 to 3 are available
20 to him. In addition, the operational sequence is extended by
specific communication structures in the sense of a
professional brainstorming.

As idea providers, the competent authorities 20 formulate a solution approach, place it in a concealed manner on the platform and specify the number of brain points the client 21 has to expend on the opening operation. At the same time, they openly mark in a specified button whether, in their view, a novelty or, alternatively, a reference to existing know-how is involved. The client 21 is able to open the concealed offer 36 at any desired instant in time, an automatic credit being made in the course of the opening to the account of the competent authority 20 involved.

Furthermore, the client 21 can optionally disclose the platform contribution without a further credit becoming due as a result for the competent authority 20. The client 21 may, however, also actuate the protest function 37. A short input field is then opened in which the client 21 has to give reasons for the protest. This has the effect that the protest is communicated to the competent authority 20 as idea provider and the latter can withdraw his offer 36 concerned. If the competent authority 20 does not withdraw his concealed offer 36, the protest 37 is disclosed to the other competent authorities 20 and the latter are invited to vote 38. If the protest is accepted with a 2/3 majority, the competent authority 20 concerned may retain the credit, but receives a

negative point in the anonymous profile. Alternatively, he can waive the credit and does not receive a negative point.

At any desired point in time, the client 21 can open up the
5 bilateral negotiation level 33 in the "negotiation room" 39.

At this bilateral negotiation level 33 in the negotiation room 39, a bilateral communication arises between a selected competent authority 20 who has qualified in the group brainstorming level 32 with the client 21. Said bilateral

10 negotiation level includes, in the first stage, the disclosure of the identities 40 of the participating parties comprising client 21 and competent authority 20,

respectively. For the client 21, this is an assessment aid in the case of high-quality solutions and a commensurate reimbursement. The objective of the second stage is to find 15 an acceptable bilateral reimbursement mechanism 41 for both sides. In this connection, the idea provider selected from the competent authorities 20 divides up a final solution draft into several fields, for example three to nine fields
20 and places them in concealed form on the server 28.

Furthermore, he specifies a value requirement for 100% of the solution. Finally, he specifies a progressive price function (for example, a hyperbola) specified in the database for the

individual prices of the fields. The client 21 can negotiate about the value requirement, and his counter-offer is displayed in turn as a table in accordance with the price function. When agreement is reached, the problem formulator 5 is automatically required to make a 100% credit card authorization. The individual fields can be opened by the problem formulator on payment of the reported values. A reimbursement is made in each case to the account of the idea provider.

10
Referring to Figures 7 to 9, various models are now revealed for the description of the solution and the disclosure in individual sections. In the case of model A in accordance with Figure 8, the transfer takes place in logically structured sections, the sections being offered as fields in a concealed manner in a logical sequence. In this connection, field 1 is the most inexpensive field, but the last field contains the key to the solution and is the most expensive field.

15
20
Model B in accordance with Figure 9 is a sale of the fields of the solution description with randomly mixed elements. The idea provider 3 divides up the draft solution into

several elements. These elements are mixed in a random generator in the database and distributed over the corresponding number of fields. Even the idea provider does not now know the specific field contents. The client can 5 uncover field after field in any desired sequence, the first disclosure being the most expensive field and the last field being the least expensive.

Referring to Figures 10 to 12, a further exemplary embodiment 10 of the present invention that can be summarized as an internal company electronic brainstorming will now be explained. The field of application of this exemplary embodiment is, for example, the implementation of continuous improvement processes (CIP) and of the company suggestion system (CSS). This exemplary embodiment can therefore serve, 15 in particular, as a creativity tool for the research and development, and innovation and development sectors in the context of an Intranet application in a company. It can activate knowledge resources of employees and internal data files. Said resources can then be further improved by a 20 subsequent brainstorming in the sense of a problem chat 18.

Important in this connection is an interdisciplinary focusing
and incorporation of the competence of an employee for
individual tasks. At the same time, the knowledge acquired
that has been standardized as knowledge potential for the
future is stored in a database 23.

5

As is evident from Figure 10, an employee 1 of a company who
has encountered a problem in the company as a result of
development, sequence faults or process observation can place
the finding of said problem 5 in the central problem-solving
platform 2. At the same time, other employees 3' of the same
company can input suggestions 4 on the central problem-
solving platform by means of the problem chat 18 that has
been opened for this problem discovery 5. In this
connection, for example, an Intranet database 24 that is
connected and contains knowledge already available in the
company can be utilized by the employees 3'. At the same
time, the new suggestions 4 are stored in a standardized
manner in an Intranet database 23 for collecting knowledge
potential.

10

15

20

As is evident from Figure 11, this system is based on an
incentive system, i.e., prizes 7 may be awarded for problem

recognition and suggested solutions, and prizes may also be awarded for pure improvement suggestions. The presentation is carried out in this connection by a system presenter 8 appointed by the company who has a CIP budget and a research and development budget 9. The system presenter 8 opens up a problem chat 18 for a particular problem discovery 5 and at the same time specifies the level of the prize 7.

Various control tools are also available for said exemplary embodiment in accordance with Figures 10 to 12.

New in this connection is the tool 40 for choosing a so-called brainmaster 10. Like other control tools, this one is initially available only to the system presenter 8. The latter can assume the brainmaster function 10 himself, specify a brainmaster 10 or, alternatively, activate the "brainmaster choice" control tool 40.

In accordance with the "brainmaster choice" tool 40, the participants (problem formulator 1, idea provider 3 or system presenter 8) award brainmaster points to the participant who has the greatest assessment competence in their opinion.

After a brainmaster 10 has been chosen, the control tools 6

are also passed to the brainmaster 10. Right of veto is, however, available to the system presenter 8.

5 The "budget" control tool 41 is exclusively available to the system presenter 8 as responsible manager of the company and

serves to increase the budget.

In contrast to the exemplary embodiments of Figures 1 to 3, in this present exemplary embodiment, the control tools 6 are

10 first available to the system presenter 8 before they are transferred to the brainmaster 10 after he has been chosen.

As a rule, the control tools 6 are consequently not at the disposal of the problem formulator 1.

15 The problem description and also the description of the suggested solutions can be supplemented on-line on a so-called "whiteboard" graphically or by means of e-mail transmitted photos etc. Alternatively, the user can select data files stored on his own hard disk and these can then be transferred to the "whiteboard" on the central platform.

20 They can then be formatted together with the description text of the problem formulation or the suggested solutions automatically into an image of low resolution, stored in the

central computer/server and a reference (link) can be generated automatically in the text of the suggested solution for viewing the graphics produced with the "whiteboard".

5 In this connection, the vector-based whiteboard does not require as an interactive on-line option either the active downloading on the part of the participants, nor is it directly executed under software control in the user's computer, but it is executed in the server itself. As 10 server-based system, it is accessible to all the participants and can be executed at a high speed.

The graphical representation of the problem description can ideally be viewed on-line by all the other participants. As 15 a simpler solution, provision may be made that the participants employ the last updated version of the graphical representation, which is transferred to the central platform only when a certain button has been actuated.

20 The technique according to the invention can also be used to build up a problem-solving database 27. Creative inputs to problem descriptions and solution descriptions and also ideas inputted without invitation are stored in said database 27.

In this connection, the problem-description and solution-
description contributions are supplemented with a quality
filter as a result of assessment by the visitor: every
visitor is able to assess the problem-description and
solution-description suggestions viewed, the assessment
average then being displayed alongside the contribution
content information. In addition, a quality assessment may
take place on the basis of the motivation points awarded as
prizes for the suggested solutions concerned.

The visitor assessment is inputted in digital form and
directly influences the categorization of the idea in the
ideas rank that is then offered to subsequent visitors after
inputting a key word. In the case of a below-average
assessment, this digital quality filter may result in an
automatic exclusion of the contribution from the area of the
database accessible to the visitors. The visit to the
database may be subject to cost. Part of the flat cost
charge is then transferred to those idea providers whose
inputs were viewed by the paying visitor. The uninvited
input of ideas, i.e., the input that is not transferred
automatically by the database program from the central
problem-solving platform may be associated with a compulsory

payment. This fixed compulsory amount is refunded or credited as soon as the contribution has acquired a certain ranking status. This has the effect of an upstream quality filter.

5

The concept of the present invention is likewise suitable for application to a TV format that interactively links a data network (Internet) with TV broadcasts. More strictly speaking, said TV format is intended to constitute problem solving by interactive linking of television and Internet.

10 As is evident from Figure 13, there are basically two groups of participants, namely a studio group 42 situated in a television studio and the viewer group 43 that can communicate with the studio group 42 on-line. Furthermore, a brainmaster 48 (presenter) is provided who can influence the problem-solving sequence by means of control tools. It is important in this connection that, as a result of awarding commensurate brain points to members of the viewer group 43, prizes worth money can also be distributed to the viewers.

15

20

In such a concept, the problem may occur that the on-line chat can result in technical problems as a result of the on-line connection of the viewer group 43 to the studio group 42

in the event of commensurate popularity of the broadcast if
too many participants in the viewer group 43 have to be
looked after. On the other hand, the number of potential
participants in the viewer group 43 should not be
artificially limited since this broadcasting format could
consequently be robbed of its appeal.

Figure 14 shows one possibility of how the technical problem
can be handled. In accordance with the concept of Figure 14,

10 a separate "chat room" 45 is assigned to every member 44 of
the studio group 42. The viewer group 43 is consequently
subdivided into different chat rooms 45 whose number depends
on the number of members in the studio group 42.

Consequently, the viewer contributions can be "channeled" out
of the rows of the viewer group 43. Every studio participant
44 in the studio group 42 has, as shown, a separate chat room
45 for which the broadcaster makes available to him a certain
prize budget. The assigned participant 44 in the studio may
present suggestions from the respective chat group 45
assigned to him as his own suggestions. Consequently, an
interesting identification results between members of the
viewer group 43 and their "favorite" in the studio group 42.
If, namely, that participant in the studio group 42 "wins" by

acquiring a commensurate number of brain points, a budget increase to the same extent by the broadcaster may take place for an equivalent prize award on the part of the actual idea provider, namely of the respective participant in the chat room 45 who is assigned to said participant in the studio group 42.

Of course, members of the viewer group 43 may hop freely between the various chat rooms 45. Consequently, every studio participant 44/chat room 45 unit is ultimately a separate system, as is shown, for example, in Figures 1 to 3. Ultimately, the system in accordance with Figures 1 to 3 is converted to the television level.

As a modification, it is possible that the members of the studio group do not receive a prize budget for the chat room they look after. A budget, including the associated control tool, is only available to the brainmaster or studio presenter. Members of the studio group distribute brain points in accordance with the system to the on-line chat participants. Said brain points denote an obligatory claim for the case where the member of the studio group looking after the chat receives a brain point worth money from the TV

presenter. Without the TV presenter having any influence, the same sum is automatically made available as (retrospectively available) budget sum for the chat room looked after, which sum increases correspondingly with every 5 additional brain point. The budget of the TV presenter is accordingly divided into two equal parts: 100% allocation to the studio group means allocation of a 200% budget. The purpose of this awarding mechanism is that the brain points, etc., of the on-line chat participants can only be converted into money if the studio member supported by them in the 10 studio also acquires brain points. The result is a stronger identification of the on-line chat participants with their "favorite" in the TV studio and consequently a certain guarantee that the chat participants actually participate right up to the end of the broadcast in order to support 15 their favorite actively.

The function of the brainmaster 48 will be presented below:

20 The function of the brainmaster 48 is to some extent comparable with the function of the system presenter 8 in accordance with Figure 12. In the television studio, therefore, the broadcast presenter is at the same time

brainmaster 48 and uses the control tools that have already been explained with reference to Figures 1 to 3 with respect to the participants in the studio group 42. The viewers can likewise be motivated by awarding brain points.

5 Consequently, the special appeal of this concept is that viewers can also acquire brain points worth money.

Referring to Figure 15, a modification of the TV format will now be explained.

10
15 In accordance with this concept, the room award function, which has already been explained under reference symbol 19 with reference to Figure 3 is offered in isolation and is matched to the television format. Said "room award" tool isolated in this way makes possible a quota-oriented broadcast control by the viewer. As a result of isolating the tool, the viewer is no longer overtaxed by a multiplicity of control tools. Consequently, this system can be incorporated into the existing formats (discussion circles, 20 reality TV shows, comedies).

As is evident from Figure 15, in the case of the isolated application of the "room award" control tool, participants in

the viewer group 47 can give their favorite participant in
the studio participant group 46 a brain award point and this
can be moved as desired between the various members of the
studio participant group 46. Only that member of the studio
5 participant group 46 who is the award holder at the time has
the right to speak. Consequently, therefore, it is not
members of the on-line participant group 47 who acquire award
points, but members of the studio participant group 46. The
right to speak is therefore coupled to the brain award point.
In this connection, only members of the on-line viewer group
10 47 who are actually on-line can award points and, as soon as
a member of the on-line viewer group 47 enters the off-line
state, his award that may already have been allocated lapses.

15 Figure 16 shows a further possibility of applying the concept
of the present invention to a TV format. According to this
concept, every studio guest has a microphone clip (or
headpiece) 49 on his head to whose upper end a small
indicator unit (light bulb) 48 is attached. The light bulb
20 of the current award holder lights up, for example, in green,
which denotes at the same time the enabling of his microphone
49. As soon as another participant takes over the
"leadership" by acquiring commensurate points, the color of